**Task 1: Running Python Script and various expressions in an interactive interpreter**

**1.A)** A bakery sells loaves of bread for 185 rupees each. Day old bread is discounted by 60 percent. Write a program that begins by reading the number of loaves of day old bread being purchased from the user.  
  
Then your program should display the regular price for the bread, the discount because it is a day old, and the total price.  
  
All of the values should be displayed using two decimal places, and the decimal points in all of the numbers should be aligned when reasonable values are entered by the user.  **CO1, K2**

**Example**

**enter total number of loaves per day**

**3**

Print the following:

#### Regular Price 555

#### Total Discount 333.0

#### Total Amount to be paid 222.0

#### Input Format

Contains the integer, **enter total number of loaves per day**

#### Output Format

Print the three lines as explained above.

#### Sample Input

enter total number of loaves per day

5

#### Sample Output 0

Regular Price 925

Total Discount 555.0

Total Amount to be paid 370.0

**Program:**

a = int(input())

print("Loaves Discount")

r=185\*a

d=0.6\*r

a=0.4\*r

print("Regular Price ", r)

print("Total Discount ", d)

print("Total Amount to be paid ", a)

**1.b)** Reena is talking with a patient during rounds, and the patient tells you, she is unsure of what is going on with her health. Reena decided to check the temperature of the patient. The thermometer shows temperature only in Celsius, but Reena needs to note the temperature in Fahrenheit. Kindly help her by writing python program to convert Celsius to Fahrenheit.

To convert the value from **python Celsius to Fahrenheit**, we take the user’s Celsius temperature as input, convert it to Fahrenheit using the conversion formula, then display it T(℉) = T(℃) x 9/5 + 32

**Input :**

37.5

**Output :**

37.5 degrees Celsius is equal to 99.5 degrees Fahrenheit.

**Input :**

90

**Output :**

1. degrees Celsius is the same as 194 degrees Fahrenheit.

**Program:**

cls = float(input(‘Enter temperature in Celsius: ‘))

fah = (cls \* 1.8) + 32

print(‘%0.1f Celsius is equal to %0.1f degrees Fahrenheit’%(cls,fah))

**1.C)** Manasa was sulking her way through a boring class when suddenly her teacher singled her out and asked her a question. He gave her two set of three coordinates and Manasa has to come up with the distance between them. Help Manasa come out of the sticky situation.

**Hint:**

The formula for distance between two points in 3 dimension i.e (x1, y1, z1) and (x2, y2, z2) has been derived from Pythagorean theorem which is:



**Example:** 

**Input:** x1, y1, z1 = (2, -5, 7)

x2, y2, z2 = (3, 4, 5)

**Output:** 9.2736184955

**Input**: x1, y1, z1 = (0, 0, 0)

x2, y2, z2 = (1, 1, 1)

**Output**: 1.73205080757

**Program:**

import math

# Function to find distance

def distance(x1, y1, z1, x2, y2, z2):

d = math.sqrt(math.pow(x2 - x1, 2) +

math.pow(y2 - y1, 2) +

math.pow(z2 - z1, 2)\* 1.0)

print("Distance is ")

print(d)

# Driver Code

x1 = float(input("Enter the X1-coordinate: "))

y1 = float(input("Enter the Y1-coordinate: "))

z1 = float(input("Enter the Z1-coordinate: "))

x2 = float(input("Enter the X2-coordinate: "))

y2 = float(input("Enter the Y2-coordinate: "))

z2 = float(input("Enter the Z2-coordinate: "))

# function call for distance

distance(x1, y1, z1, x2, y2, z2)

**d.** When finding **quadratic  equation in python**, one must consider the points discussed below:

The roots of a quadratic equation can be classified as:

* If b\*b < 4\*a\*c, then roots are complex
* If b\*b == 4\*a\*c, then roots are real, and both roots are the same.
* If b\*b > 4\*a\*c, then roots are real and different

**Input Format** The first line contains an integer a, i.e. the number of test cases. Each of the next T

lines contain two space separated integers, N and M.

**Output Format** T lines each containing output for the corresponding test case.

**Input :**a= 1, b= 2, c= 1

**Output :**

Roots are real and same

-1.0

**Input :** a = 2, b = 2, c = 1

**Output :**

Roots are complex

-0.5 + i 2.0

-0.5 – i 2.0

**Input : a**= 1, b = 10, c = -24

**Output :**

Roots are real and different

2.0

-12.0

**Program:**

import math

def equationroots( x, y, z):

discri = y \* y - 4 \* x \* z

sqrtval = math.sqrt(abs(discri))

# checking condition for discriminant

if discri > 0:

print(" real and different roots ")

print((-y + sqrtval)/(2 \* x))

print((-y - sqrtval)/(2 \* x))

elif discri == 0:

print(" real and same roots")

print(-y / (2 \* x))

# when discriminant is less than 0

else:

print("Complex Roots")

print(- y / (2 \* x), " + i", sqrtval)

print(- y / (2 \* x), " - i", sqrtval)

# Driver Program

x = int(input())

y = int(input())

z = int(input())

if x == 0:

print("Input correct quadratic equation")

else:

equationroots(x, y, z)

**Output:**

